ORDER NO. AD8902026C2

Service Manual

Mini Cassette

Stereo Cassette Player

RQ-P300

Color

(K)... Black Type

Area

Country Code	Area	Color
[E]	Continental Europe.	(K)
[EB]	United Kingdom.	
[EG]	F.R. Germany.	
[EO]	Switzerland.	

■ SPECIFICATIONS

Power Requirement:	With optional AC adaptor; [E] [EG] [EO]....RPAC1Z (220V, 50Hz) [EB] .....RPAC1ZE (240V, 50Hz) Battery; 1.5V (one R6P/LR6,"UM-3"battery) Included Rechargeable Battery; 1.2V
Power Output:	10mW (5mW × 2)...RMS (max.)
Input:	DC IN; 1.5V (mini jack, φ2.5)
Output:	Headphones; 16Ω (φ3.5)
Dimensions:	71.8mm (W) × 105.5mm (H) × 24.2mm (D)
Weight:	146g with rechargeable battery
Frequency Response:	30~18,000Hz (with normal tape) 30~18,000Hz (with CrO_2 tape) 30~18,000Hz (with Metal tape)
Motor:	Electrical governor motor
Tape Speed:	4.8cm/s
Track System:	4-track 2-channel stereo
Charger:	Input; AC220V, 50Hz, 4W (For [EB], AC 240V, 50Hz, 4W) Output; DC 1.2V, 350mA

Design and specifications are subject to change without notice.

Panasonic

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

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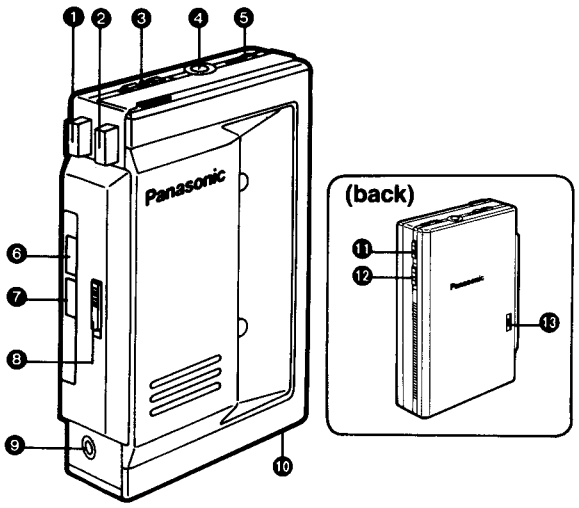
LOCATION OF CONTROLS



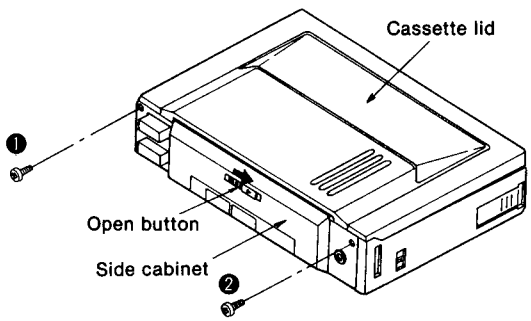
❶ **Playback Button (PLAY)**
❷ **Stop Button (STOP)**
❸ **XBS (Extra Bass System) Selector (XBS)**
❹ **Headphones Jack ( ) (16Ω, φ3.5)**
❺ **Volume Control (VOLUME)**
❻ **Fast Forward/Direction Button (FF • DIR)**
❼ **Rewind/Repeat Button (REW • REPEAT)**
❽ **Open Switch (OPEN)**
❾ **DC Input Jack (DC IN 1.5 V ⊖⊖⊕) (mini jack φ2.5)**
• Optional AC adaptor, RPAC1Z
For [EB], use optional AC adaptor RPAC1ZE.
❿ **Rechargeable Battery Cover**
⓫ ***Dolby Noise Reduction Switch (DOLBY NR)**
⓬ **Tape Selector (TAPE)**
⓭ **Hold Switch (HOLD)**
• This only works for ❻ and ❼ buttons.

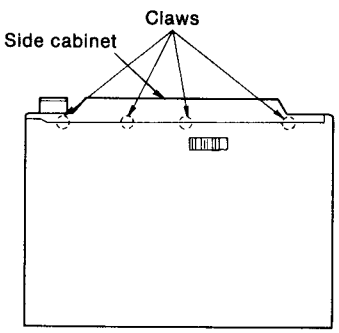
*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

DISASSEMBLY INSTRUCTIONS

THIS UNIT CONTAINS F.P.C. BE CAREFUL NOT TO CUT OR DAMAGE THE FOIL DURING DISASSEMBLY.

Ref. No. 1	**How to remove the Side cabinet.**
Procedure 1	1. Push the open button in the direction of arrow, and then open the cassette lid. 2. Remove the 2 screws (❶, ❷). 3. Remove the 4 claws, and then remove the side cabinet.





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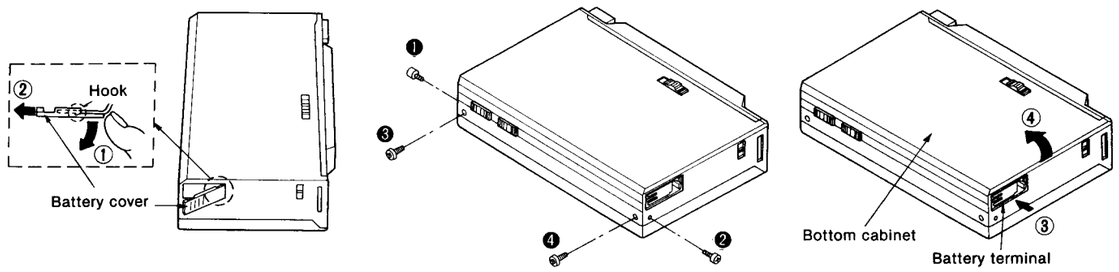
Ref. No. 2 — How to remove the Bottom cabinet.

Procedure 1→2

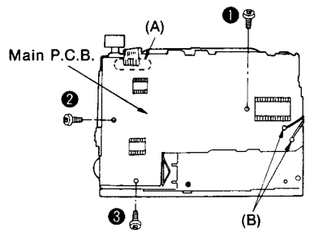
1. Open the battery cover.
2. Remove the hook in the direction of arrow ①, and then remove the battery cover in the direction of arrow ②.
3. Remove the 4 screws (❶~❹).
4. While pressing the battery terminal in the direction of arrow ③, remove the bottom cabinet in the direction of arrow ④.



Ref. No. 3 — How to remove the Main P.C.B.

Procedure 1→2→3

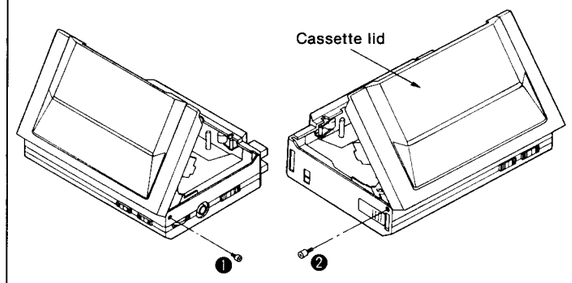
1. Remove the 7 solders (A) and the F.P.C.
2. Remove the 2 solders (B) on the motor terminals.
3. Remove the 3 screws (❶~❸), and then remove the main P.C.B.



Ref. No. 4 — How to remove the Cassette lid.

Procedure 4

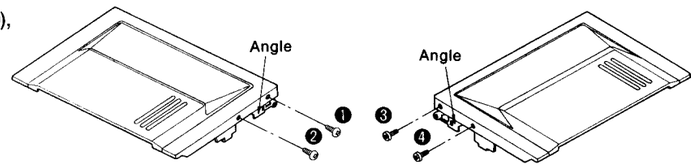
1. Open the cassette lid. (Refer to Procedure 1.)
2. Remove the 2 screws (❶, ❷), and then remove the cassette lid.



Ref. No. 5 — How to remove the Angles.

Procedure 4→5

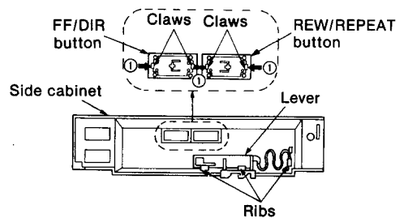
- Remove the 4 screws (❶~❹), and then remove the angles.



Ref. No. 6 — How to remove the Lever and Buttons.

Procedure 1→6

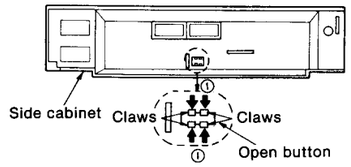
1. Remove the 3 ribs, and then remove the lever.
2. Push the claws in the direction of arrow ①, and then remove the FF/DIR button and REW/REPEAT button.



Ref. No. 7 — How to remove the Open button.

Procedure 1→6→7

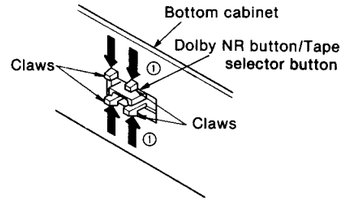
- Push the claws in the direction of arrow ①, and then remove the open button.



Ref. No. 8 — How to remove the buttons.

Procedure 1→2→8

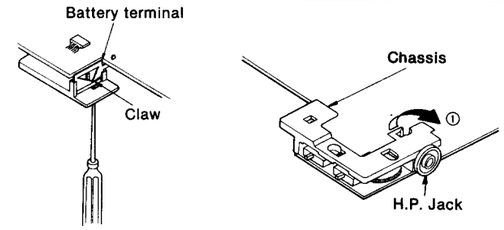
- Push the claws in the direction of arrow ①, and then remove the Dolby NR button and tape selector button.



Ref. No. 9 — How to remove the Chassis.

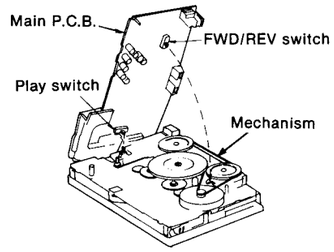
Procedure 1→2→3→9

1. Remove the claw.
2. Remove the chassis in the direction of arrow ①.



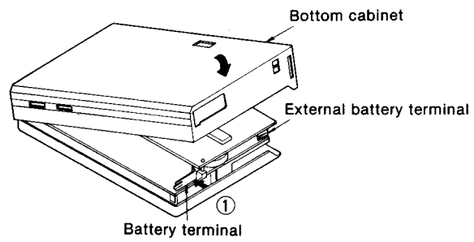
■ HOW TO REPLACE THE MAIN P.C.B.

- Place the main P.C.B. so that the switches on it engage with the mechanism.



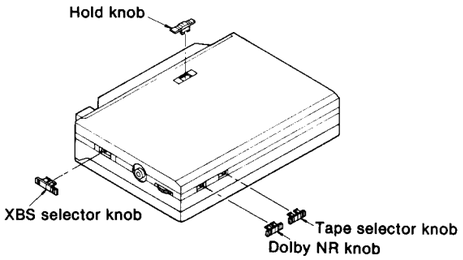
■ HOW TO REPLACE THE BOTTOM CABINET.

- While pressing the battery terminal in the direction of arrow ①, reinstall the bottom cabinet so that the external battery terminal will not be damaged.

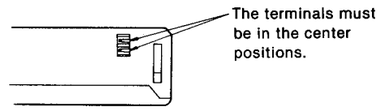


■ HOW TO REPLACE THE KNOBS.

- Reinstall the knobs so that they engages with their switches.



- After placing the bottom cabinet, make sure that the terminals are in their center positions. (Otherwise, battery contact will not be optimum.)



MEASU

■ ADJUSTM

1. Set volume
2. Set Dolby N
3. Set hold sw
4. Set XBS se

■ TAPE DEC

ITEM	
Tape speed	

■ ADJUSTM

* Please refer t

for Head

* Tape Pass
This unit use
•TPC System Ou

TPC System

TPC G

F

■ How to ch

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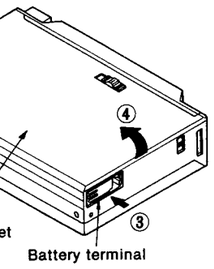

Cassette lid.

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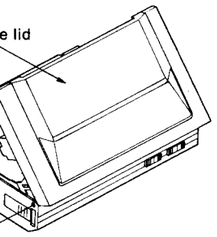

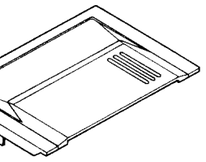

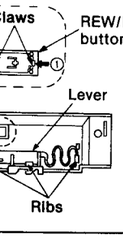

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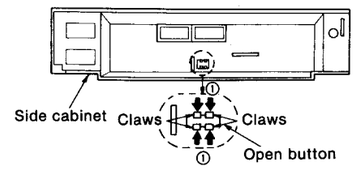

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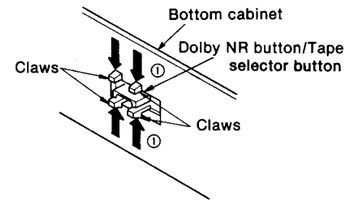

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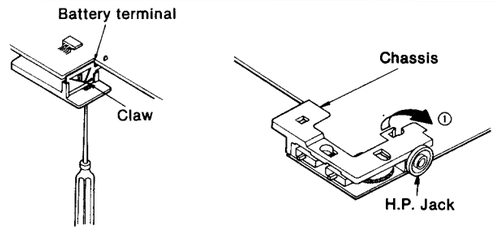
Procedure 1→2→3→9	1. Remove the claw. 2. Remove the chassis in the direction of arrow ①.



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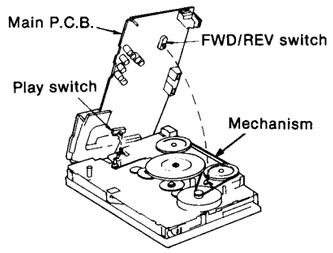

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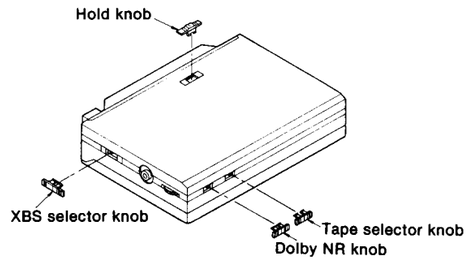
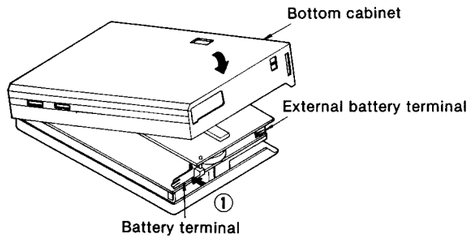
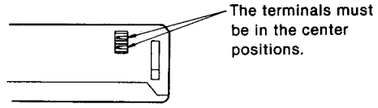


■ HOW TO REPLACE THE BOTTOM CABINET.

• While pressing the battery terminal in the direction of arrow ①, reinstall the bottom cabinet so that the external battery terminal will not be damaged.



• After placing the bottom cabinet, make sure that the terminals are in their center positions.
(Otherwise, battery contact will not be optimum.)



MEASUREMENTS AND ADJUSTMENTS

■ ADJUSTMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ADJUSTMENT	
1. Set volume control to maximum.	5. Set tape selector switch to normal.
2. Set Dolby NR switch to OFF.	6. Set power source voltage to 1.5V DC.
3. Set hold switch to OFF.	7. Output of signal generator should not be higher than necessary to obtain an output reading.
4. Set XBS selector switch to OFF.	

■ TAPE DECK ADJUSTMENT

ITEM	TEST TAPE	MEASUREMENT POINT	ADJUSTMENT POINT	PROCEDURE
Tape speed	QZZCWAT (3kHz, −10dB)	Headphones jack (16Ω) (Refer to Fig. 1)	VR1...Forward VR2...Reverse (Refer to Fig. 2)	Playback the central part of the tape and adjust VR1 and VR2 so that the tape speed is as follows. Forward: $3{,}000^{+20}_{-40}$Hz Reverse: $3{,}000^{+20}_{-40}$Hz

■ ADJUSTMENT POINT

* Please refer to the Circuit Boards and Wiring Connection Diagram for test point locations

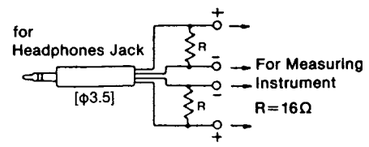


Fig. 1

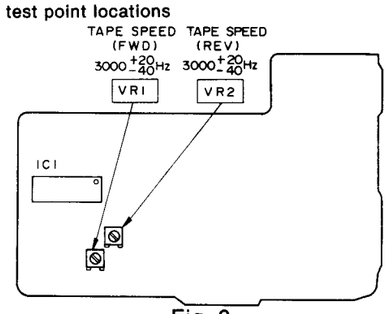


Fig. 2

* Tape Pass Control

This unit uses the TPC system making the head azimuth adjustment unnecessary.

•TPC System Outline

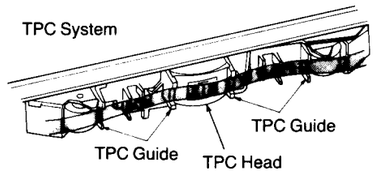


Fig. 3

The TPC guides on both sides of the head and on one side of the pinch rollers are installed in such a way (see Fig. 3) that the tape will run evenly and along the headgap at the right angle. The head azimuth adjustment is therefore unnecessary; there are no head azimuth adjustment screws.
The TPC guides on one side of the pinch rollers also control the disturbance caused by the tape width and speed in the forward and reverse mode.

■ How to check the operation of the Mechanism

1. Remove the P.C.B. as shown in "How to remove the Main P.C.B." and then remove the Mechanism Assembly.

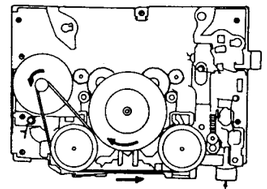


Fig. 4

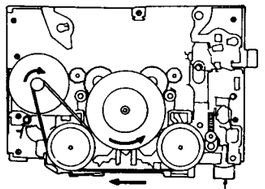


Fig. 5

2. In the stop mode, connect the motor lead with the red covering to the plus (+) voltage and the motor lead with the black covering to the minus (−) voltage of the 1.2V power supply.
The "rewind" mode will be set on the unit. In this mode, press the PLAY button to check if the mode is changed to reverse playback.

3. In the stop mode, connect the motor lead with the red covering to the minus (−) voltage and the motor lead with the black covering to the plus (+) voltage of the 1.2V power supply.
The fast forward mode will be set on the unit. In this mode, press the PLAY button to check if the mode is changed to forward playback.

RQ-P300 RQ-P300

SCHEMATIC DIAGRAM

(Parts list on pages 14 and 15.)

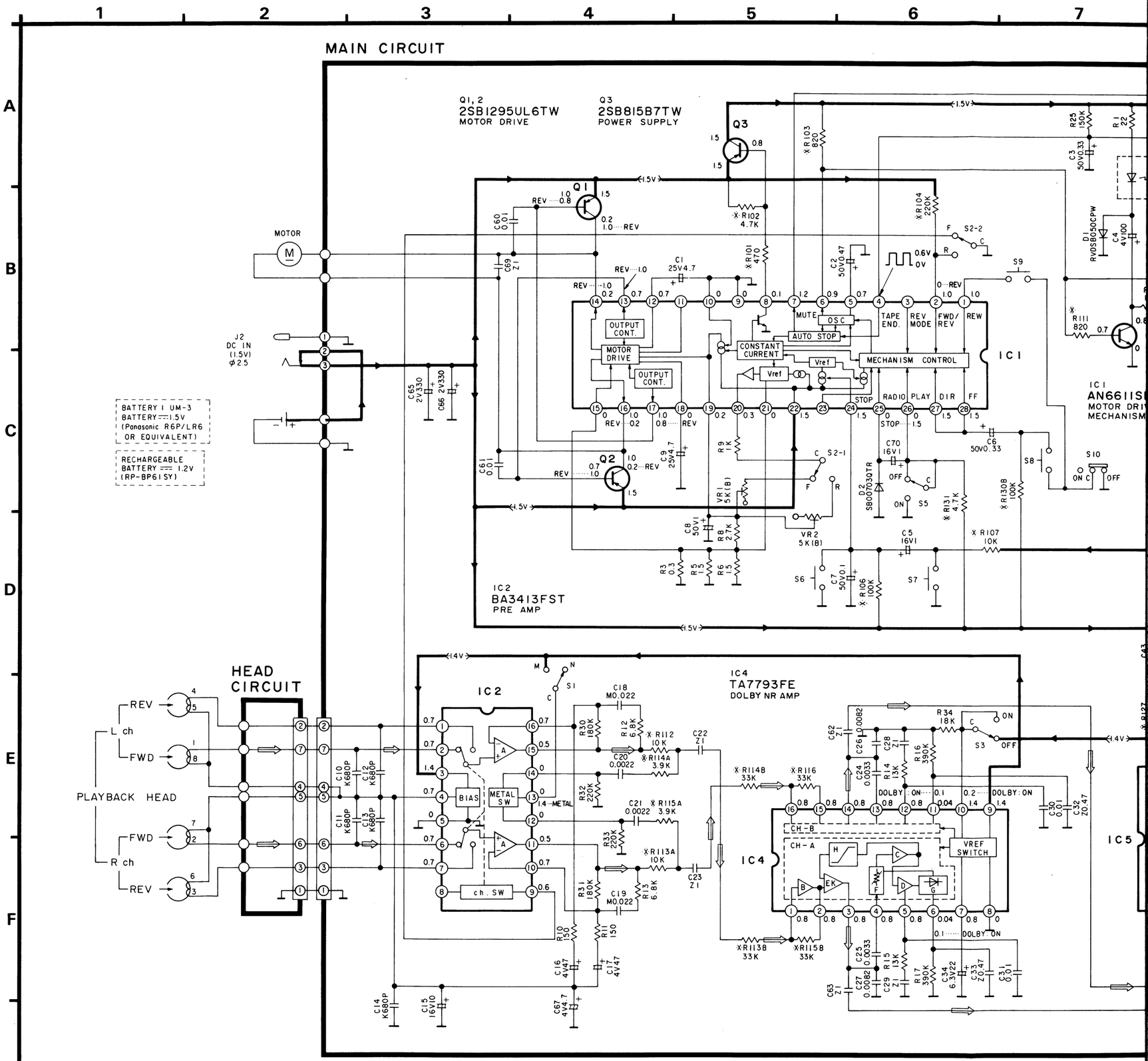
Notes:

1. S1 : Tape selector switch in "NORMAL" position. (N...Normal, M...CrO_2/Metal)
2. S2-1, S2-2 : FWD/REV switch in "FORWARD" position. (F...Forward, R...Reverse)
3. S3 : Dolby NR switch in "OFF" position.
4. S4 : XBS selector switch in "OFF" position. (OF...Off, MI...Mid, MA...Max)
5. S5 : Play switch in "OFF" position.
6. S6 : Stop switch.
7. S7 : Stop detect switch (leaf switch) in "OFF" position.
8. S8 : F.F./Direction switch.
9. S9 : REW/Repeat switch.
10. S10 : Hold switch in "OFF" position.
11. VR1 : Tape speed adjustment VR. (Forward)
12. VR2 : Tape speed adjustment VR. (Reverse)
13. VR3-1, VR3-2 : Volume control VR.
14. Battery current: No signal .....158mA (VR: MIN)
    Maximum output .....171mA (VR: MAX)
15. DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.
    No mark...Playback (FWD) mode
16. (※) mark...Printed resistor.

- **This schematic diagram may be modified at any time with the development of new technology.**
- **The supply parts number is described alone in the replacement parts list.**

⟶⟵ ...⊕ B LINE

⇨ ...PLAYBACK SIGNAL LINE



1 2 3 4 5 6 7 8 9 10 11

MAIN CIRCUIT

Q1, 2
2SB1295UL6TW
MOTOR DRIVE

Q3
2SB815B7TW
POWER SUPPLY

PC1
RVSGP2S09B
PHOTO COUPLER

Q7
2SB709STW
TAPE END DET.

Q6
2SD601STW
TAPE END DET.

IC1
AN6611SE2
MOTOR DRIVE/
MECHANISM CONTROL

IC2
BA3413FST
PRE AMP

IC3
LA4538MT
POWER AMP

IC4
TA7793FE
DOLBY NR AMP

IC5
LA3550MT
XBS AMP

Q5
2SB815B7TW
POWER SUPPLY

MOTOR

J2
DC IN
(1.5V)
φ2.5

J1
HEADPHONES
(16Ω)
φ3.5

BATTERY I UM-3
BATTERY ⎓ 1.5V
(Panasonic R6P/LR6
OR EQUIVALENT)

RECHARGEABLE
BATTERY ⎓ 1.2V
(RP-BP61SY)

HEAD
CIRCUIT

REC
L ch
FWD
PLAYBACK HEAD
FWD
R ch
REV

OUTPUT CONT.
MOTOR DRIVE
OUTPUT CONT.
CONSTANT CURRENT
Vref
MECHANISM CONTROL
MUTE
OSC
AUTO STOP
TAPE END.
REV MODE
FWD/REV
REW
STOP
RADIO
PLAY
DIR
FF

POWER SWITCH
MUTE CIRCUIT
AMP
AMP
BIAS
RIPPLE FILTER

BIAS
METAL SW
ch. SW

CH-A
CH-B
VREF SWITCH

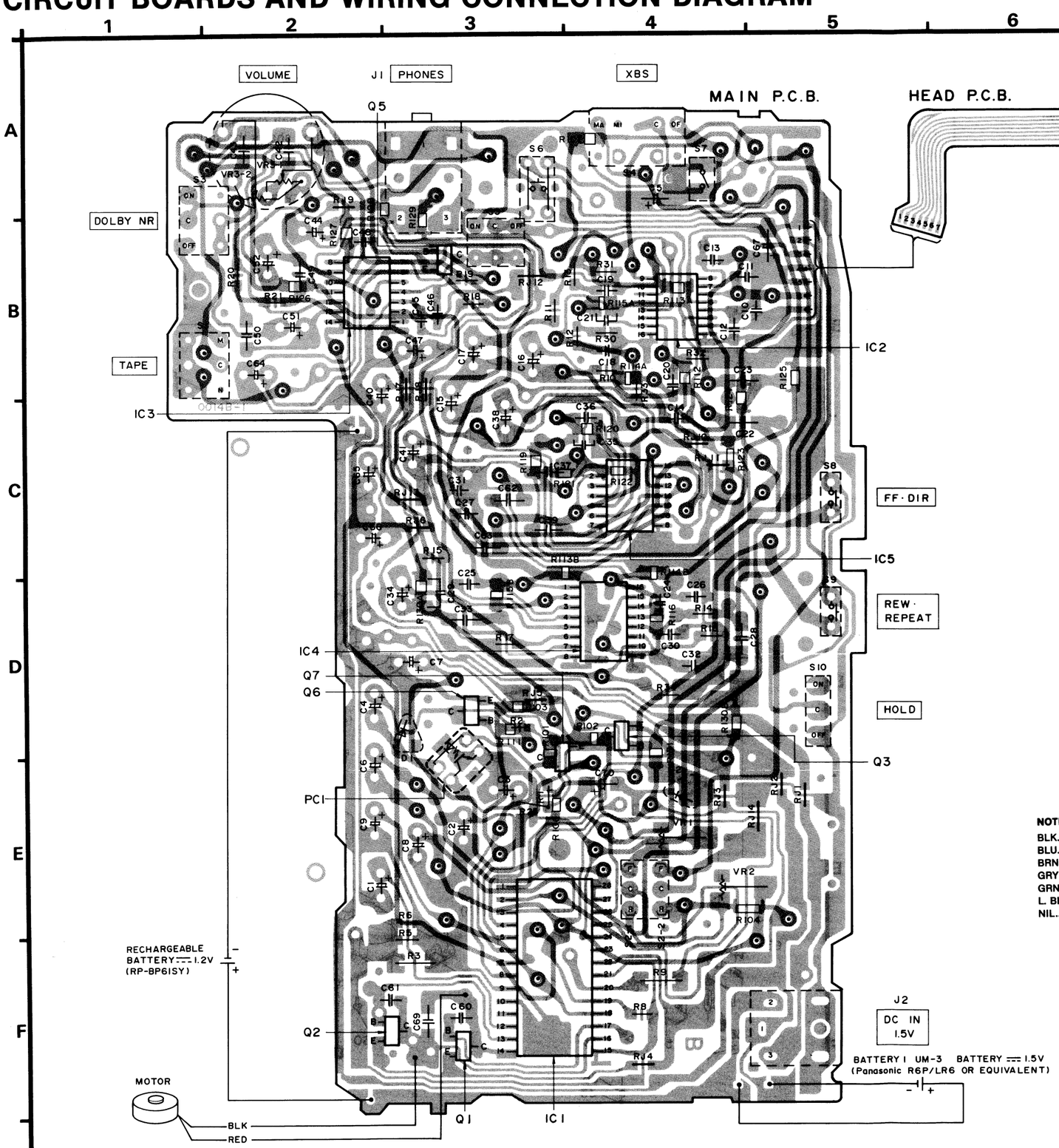
XBS MAX 0
0 XBS MAX
ON/OFF

DOLBY ON

— 7 —

— 8 —

CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM



Notes:

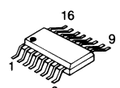
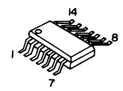
This diagram shows a back view of the component mounting surface.

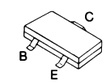
1. The circuit shown in ( ) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in ( ) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (•) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.
4. —— : Chip resistor
5. ▬ : Chip jumper (0Ω)
6. ▩□▩: Printed resistor

• This circuit boards and wiring connection diagram may be modified at any time with the developement of new technology.

NOTES:

BLK..... Black	ORG..... Orange
BLU..... Blue	PNK..... Pink
BRN..... Brown	RED..... Red
GRY..... Gray	SLD..... Shield Wire
GRN..... Green	VLT..... Violet
L. BLU... Light Blue	WHT..... White
NIL..... No Color Mark	YEL..... Yellow

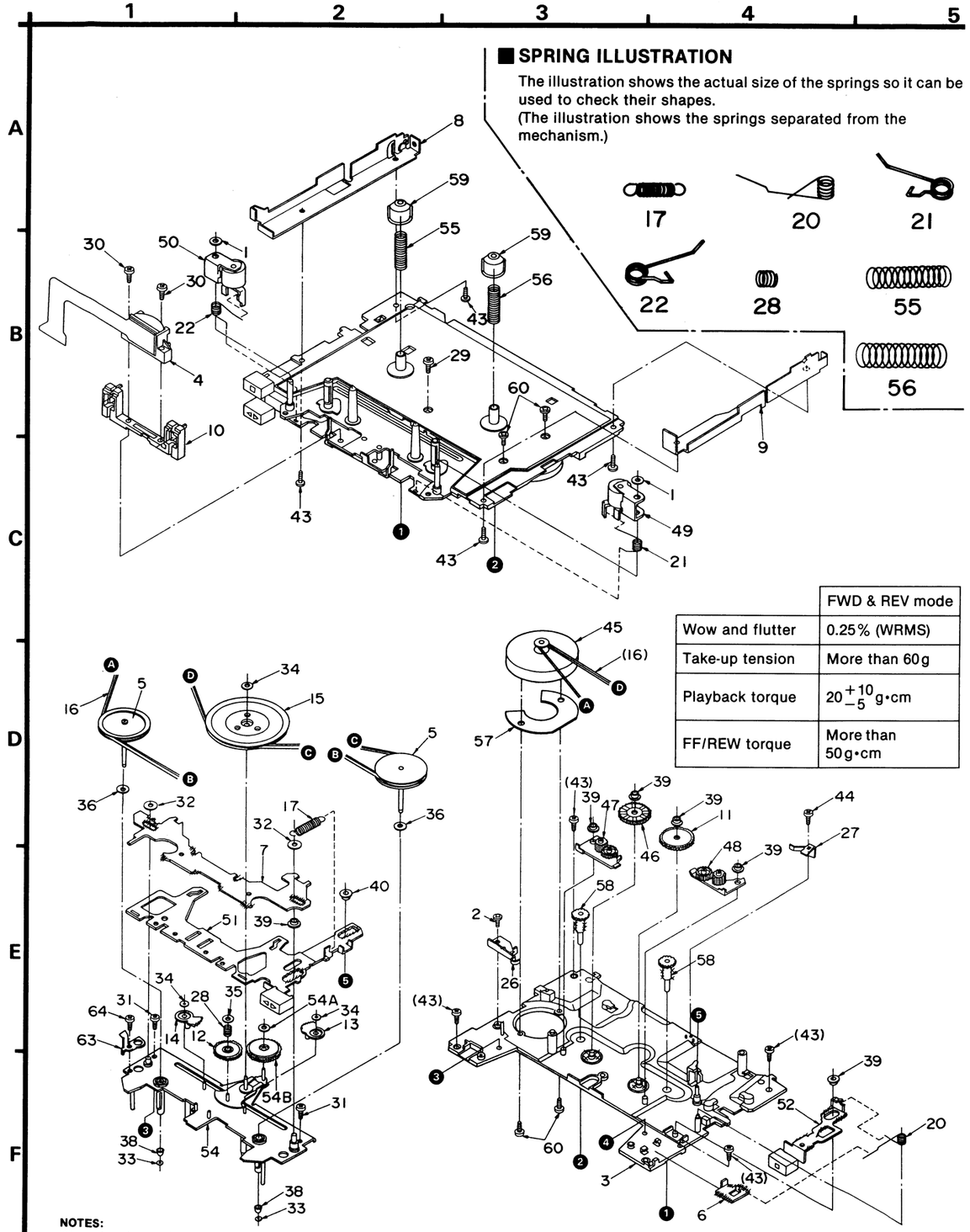
AN6611SE2	28Pin	BA3413FST	16Pin	LA4538MT	14Pin
					

2SB1295UL6TW 2SB815B7TW 2SB709S 2SD601STW	RVDSB0505CPW SB00703QTR
	

TERMINAL FUNCTION OF IC (IC1: AN6611SE2)

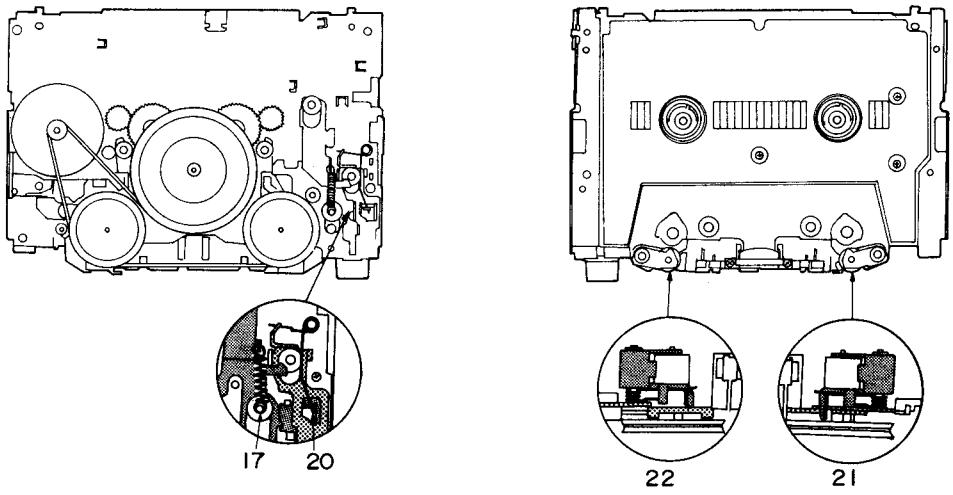
Terminal No.	Terminal name	In/Out	Description
1	REW	Input	REW/REPEAT switch (S9) input terminal (at the time of "ON": Low).
2	FWD/REV	Input	FWD/REV switch (S2) input terminal (at the time of "REV": Low).
3	REV MODE	Input	Reverse mode detection terminal. Not used in this unit.
4	TAPE END	Input	Tape turning detection terminal The pulse signal from transistor (Q4) is input to this terminal in accordance with the turning/not turning condition of the tape. With pulse signal: Tape turning. No pulse signal: Tape stopped (end of tape) and subsequent mode is set (stop, reverse play, etc) according to current mode.
5	C	——	External condenser terminal for internal oscillator circuit. f=270Hz
6	OSC	Output	Oscillator output terminal.
7	MUTE	Output	A Low level signal is output from this terminal at the beginning of tape movement and during FF/REW. Power IC (IC5) will take on the muting status.
8	RLTE	Output	Regulate signal output terminal.
9	GND	——	Ground terminal.
10	FF/REW	——	FF/REW speed control terminal. Connect to ground.
11	FWD/REV	——	FWD/REV speed correction terminal. Not used in this unit.
12	PHAS 1	——	External condenser terminal for motor phase correction at the reverse mode.
13	OUTPUT 1	Output	Motor turning stabilized signal output terminal for reverse mode.
14	DRIVE 1	Output	Motor drive current output terminal for reverse mode.
15	LOAD	——	Motor rotation control terminal with load of motor.
16	DRIVE 2	Output	Motor drive current output terminal for forward mode.
17	OUTPUT 2	Output	Motor turning stabilized signal output terminal for forward mode.
18	PHAS 2	——	External condenser terminal for motor phase correction at the forward mode.
19	SPEED	Input	Tape speed control terminal.
20	V_{REF} (+)	——	Reference voltage control resistor terminal for motor drive.
21	V_{REF} (−)		
22	V_{DD}	Input	Power supply terminal. (+1.5V)
23	FAT	Input	Fast signal input terminal. Not used in this unit.
24	STP	Input	Stop switch (S6) input terminal. (at the time of "ON"=Low)
25	RADIO	Input	Not used in this unit.
26	PLY	Input	Play switch (S5) input terminal. (at the time of "ON"=Low)
27	DIR	Input	FF/Direction switch (S8) input terminal. (at the time of "ON"=Low)
28	FF		

MECHANISM PARTS LOCATION (Parts list on page 14.)

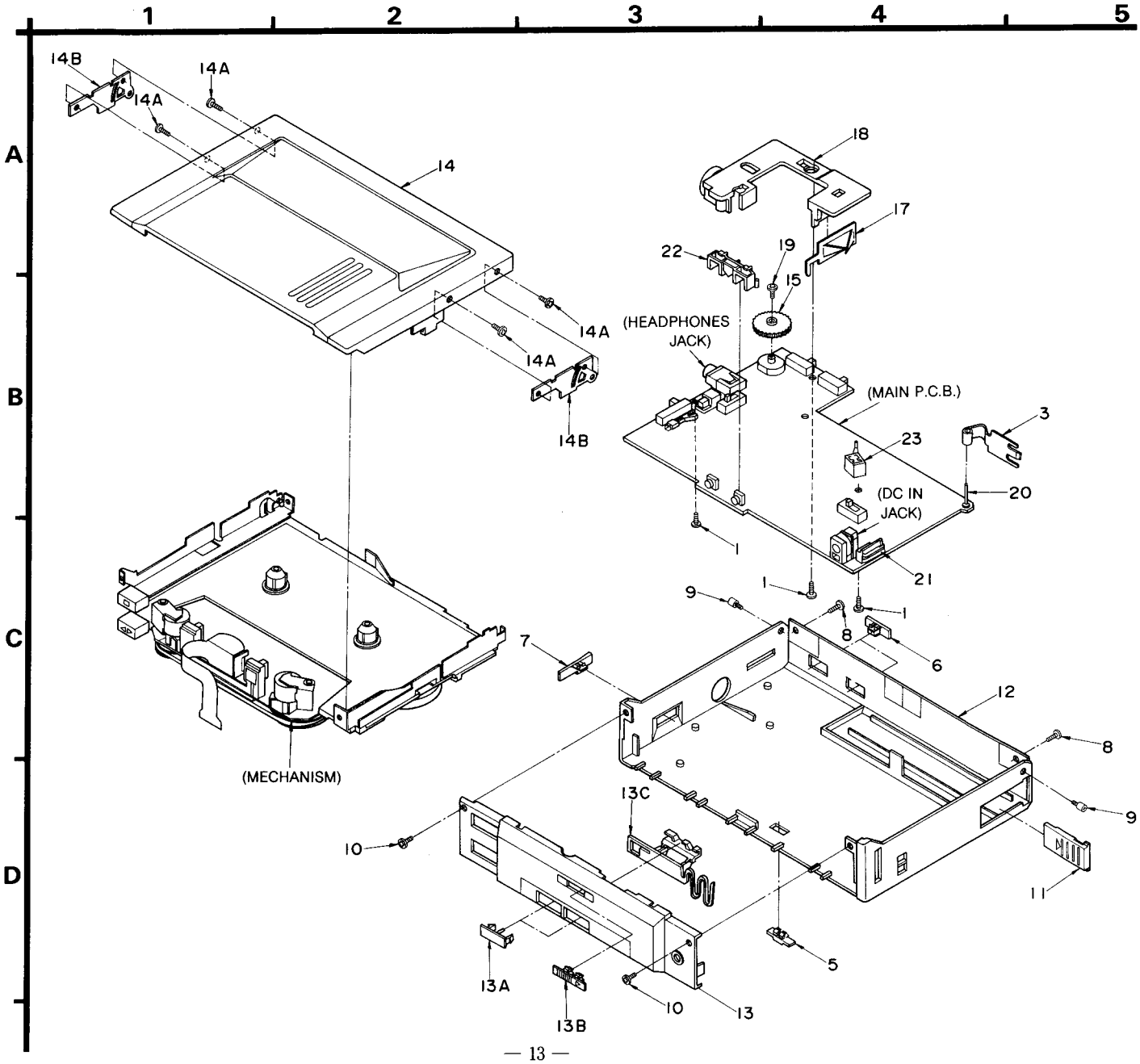


	FWD & REV mode
Wow and flutter	0.25% (WRMS)
Take-up tension	More than 60g
Playback torque	20^{+10}_{-5} g•cm
FF/REW torque	More than 50g•cm

• SPRING PARTS LOCATION



CABINET PARTS LOCATION (Parts list on page 14.)



■ REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1	AN6611SE2	I.C, MOTOR DRIVE/MECHANISM CONTROL
IC2	BA3413FST	I.C, PRE AMP
IC3	LA4538MT	I.C, POWER AMP
IC4	TA7793FE	I.C, DOLBY NR AMP
IC5	LA3550MT	I.C, XBS AMP
TRANSISTORS		
Q1	2SB1295UL6TW	TRANSISTOR
Q2	2SB1295UL6TW	TRANSISTOR
Q3	2SB815B7TW	TRANSISTOR
Q5	2SB815B7TW	TRANSISTOR
Q6	2SD601STW	TRANSISTOR
Q7	2SB709S	TRANSISTOR
DIODES		
D1	RVDSB0505CPW	DIODE
D2	SB00709QTR	DIODE
VARIABLE RESISTORS		
VR1	RVNEA53B1W-F	V.R, TAPE SPEED ADJ. (FWD)
VR2	RVNEA53B1W-F	V.R, TAPE SPEED ADJ. (REV)
VR3	EVUBQAT50A54	V.R, VOLUME CONTROL
PHOT COUPLER		
PC1	RVSGP2S09B	COMPONENT COMBINATION
SWITCHES		
S1	RSS2B56XA-A	SW, TAPE SELECTOR
S2	ESD1132255	SW, FWD/REV
S3	RSS2B56XA-A	SW, DOLBY NR
S4	RSS3B32Z	SW, XBS
S5	ESD1132255	SW, PLAY
S6	RSH1A87ZA-H	SW, STOP
S7	RSH1A001-U	SW, STOP DETECT
S8	RSG0001	SW, FF/DIRECTION
S9	RSG0001	SW, REW/REPEAT
S10	RSS2A61YA-L	SW, HOLD
OTHERS		
J1	RJJD3S5Z	JACK, HEADPHONES
J2	RJJB2Z	JACK, DC IN

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1	RHE5079Z	SCREW
3	RJC99002	BATTERY TERMINAL
5	RBD547YA-0	KNOB, HOLD
6	RGV0004-K	KNOB, DOLBY NR/TAPE SELECTOR
7	RGV0017-K	KNOB, XBS SELECTOR
8	RHE5097Z	SCREW
9	RHE5123Y	SCREW
10	RHQ0002-K	SCREW
11	RKK0002-K	BATTERY COVER
12	RKS0003A-K	BOTTOM CABINET
13	RXQ0003-1	SIDE CABINET ASS'Y
13A	RGU0013-S	BUTTON, FF.DIR/REW.REPEAT
13B	RGV0007-K	BUTTON, OPEN
13C	RMR0026-K	LEVER
14	RXQ0004-1	CASSETTE LID ASS'Y
14A	RHE5097Z	SCREW
14B	RMA0009	ANGLE
15	RGW0005-K	KNOB, VOLUME
17	RJC99016ZB	BATTERY TERMINAL
18	RMN0007-K	CHASSIS, H.P JACK
19	XSHR17+2FZ	SCREW
20	RDF3147ZA	SHAFT
21	RJT911ZA	TERMINAL, EXTERNAL BATTERY
22	RMN0006	HOLDER
23	RHR1382ZA	HOLDER

Ref. No.	Part No.	Description
MECHANISM		
CASSETTE DECK		
1	QBW2129	WASHER
2	XQN14+CQ25FZ	SCREW
3	RFU170ZB	CHASSIS ASS'Y
4	1JH0036ZAM	HEAD ASS'Y
5	1DWAKAR40RZA	FLYWHEEL ASS'Y
6	RNR82ZA	ANGLE
7	RNR84ZB	ROD
8	RMA0010	ANGLE
9	RMA0011	ANGLE
10	RUGK9ZA	HOLDER
11	RNG140ZA	GEAR
12	RNG145ZB	GEAR
13	RNG146ZA	GEAR
14	RNG147ZA	GEAR
15	RDR147ZB	PULLEY
16	RDV112ZA	BELT
17	RUD127ZB	SPRING
20	RUW201ZA	SPRING
21	RUW202ZA	SPRING
22	RUW203ZA	SPRING
26	RUS772ZA	SPRING
27	RUA776ZA	SPRING
28	RUQ117ZA	SPRING
29	XQN14+C25FZ	SCREW
30	XQN14+CM6.5	SCREW
31	XQS14+A25FZ	SCREW
32	QBK92126	WASHER
33	RNW103ZA	WASHER
34	RNW137ZA	WASHER
35	RNW142ZA	WASHER
36	RNW151Z	WASHER
38	RHRK547ZA	SPACER
39	RHR1282Z	BUSHING
40	RHR3376ZA	BUSHING
43	RHE5097ZB	SCREW
44	XQN16+AQ16	SCREW
45	1JQAKAR40PZA	MOTOR ASS'Y
46	1NGAKAR40RZA	GEAR ASS'Y
47	1NLAKAR40RZA	LEVER ASS'Y
48	2NLAKAR40RZA	LEVER ASS'Y
49	1NLAKAR40PZA	PINCH ROLLER ASS'Y, FWD
50	2NLAKAR40PZA	PINCH ROLLER ASS'Y, REV
51	1NRAKAR40PZA	BUTTON ASS'Y, PLAY
52	2NRAKAR40RZA	BUTTON ASS'Y, STOP
54	1UAAKAR40RZB	CHASSIS ASS'Y
54A	RNW137ZA	WASHER
54B	2NGAKAR40RZB	GEAR
55	RUQ120ZA	SPRING
56	RUQ121ZA	SPRING
57	RMC1229ZA	SHIELD PLATE
58	RNG139ZA	GEAR
59	RDM25ZA	REEL TABLE
60	XQN17+A18FZ	SCREW
63	RUS775ZA	SPRING
64	RHE5080Z	SCREW

Ref. No.	Part No.	Description
PACKING MATERIAL		
P1	RPH647ZA	PAD
P2	RPK0026	GIFT BOX
P3	RPN0049	CUSHION
P4	RPQ0005	SLEEVE
ACCESSORIES		

Ref. No.	Part No.	Description
A2	RP-BA305SY-0	BATTERY CASE
A3 ⚠ (EB)	RP-BC155EBY0	BATTERY CHARGER
A3 ⚠ (E, EG, EO)	RP-BC155EY-0	BATTERY CHARGER
A4 ⚠	RP-BP61SY	RECHARGEABLE BATTERY
A5	RP-HV134SY-0	HEADPHONE
A7	RQT0021E	INST. MANUAL

■ RESISTORS & CAPACITORS

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Unique
ECEA	50	M	330	
Type	Voltage (50V)	Characteristics	Value (33μF)	

- Capacity values are in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
- Resistance values are in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Resistor Type	Wattage		Tolerance
ERD : Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG : Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ : Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX : Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L : Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K : Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC : Solid	6G : 1/10W	8G : 1/8W	
ERF : Incombustible Box-Shaped			
ERM : Wire-Wound			
RRJ : Chip Resistor			
ERJ : Chip Resistor			

Capacitor Type	Voltage		Tolerance
ECE : Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD : Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD : Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80 % −20
ECQM : Polyester	50 : 50V	05 : 50V	J : ±5%
ECQP : Polypropylene	2H : 500V	2A : 100V	G : ±2%
ECG : Ceramic	1 : 100V	1J : 63V	F : ±1%
ECEA N : Non Polar Electrolytic	KC : 400V AC		C : ±0.25pF
QCU : Ceramic (Chip Type)	KC : 125V AC (UL)		D : ±0.5pF
ECUX : Ceramic (Chip Type)			
ECF : Semiconductor			
EECW : Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R1	RRJ6GCJ220TE	22 1/10
R2	RRJ6GEJ100T	10 1/10
R3	RRSL39JR30U	0.3 1/8
R5	RRJ6GCK1R5TE	1.5 1/10
R6	RRJ6GCK1R5TE	1.5 1/10
R8	RRJ6GCJ272TE	2.7K 1/10
R9	RRSL10J102U	1K 1/8
R10	RRJ6GCJ151TE	150 1/10
R11	RRJ6GCJ151TE	150 1/10
R12	RRJ6GEJ682T	6.8K 1/10
R13	RRJ6GCJ682TE	6.8K 1/10
R14	RRJ6GCJ133TE	13K 1/10
R15	RRJ6GCJ133TE	13K 1/10
R16	RRJ6GCJ394TE	390K 1/10
R17	RRJ6GCJ394TE	390K 1/10
R18	RRJ6GCJ471TE	470 1/10
R19	RRJ6GCJ471TE	470 1/10
R20	RRJ6GCJ4R7TE	4.7 1/10
R21	RRJ6GCJ4R7TE	4.7 1/10
R25	RRJ6GCJ154	150K 1/10
R30	RRJ6GCJ184TE	180K 1/10
R31	RRJ6GCJ184TE	180K 1/10
R32	RRJ6GCJ224TE	220K 1/10
R33	RRJ6GCJ224TE	220K 1/10
R34	RRJ6GCJ183TE	18K 1/10
RJ1	RRJ6GCJ000TE	0 1/10
RJ2	RRJ6GCJ000TE	0 1/10
RJ3	RRJ6GCJ000TE	0 1/10
RJ4	RRJ6GCJ000TE	0 1/10
RJ5	RRJ6GCJ000TE	0 1/10
RJ6	RRJ6GCJ000TE	0 1/10
RJ7	RRJ6GCJ000TE	0 1/10
RJ8	RRJ6GCJ000TE	0 1/10
RJ9	RRJ6GCJ000TE	0 1/10
RJ10	RRJ6GCJ000TE	0 1/10
RJ11	RRJ6GCJ000TE	0 1/10
RJ12	RRD18XK000V	0 1/8
RJ13	RRD18XK000V	0 1/8
RJ14	RRD18XK000V	0 1/8
CAPACITORS(VALUE,VOLTAGE)		
C1	ECEA1EKS4R7L	4.7 25
C2	ECEA1HKSR47L	0.47 50
C3	ECEA1HSDR33L	0.33 50
C4	ECEA0GKS101L	100 4
C5	RCSE1CT105LE	1 16
C6	ECEA1HKSR33	0.33 50
C7	ECEA1HKS0R1	0.1 50
C8	ECEA1HKS010L	1 50
C9	ECEA1EKS4R7L	4.7 25
C10	RCUV1H681KB	680P 50
C11	RCUV1H681KB	680P 50
C12	RCUV1H681KB	680P 50
C13	RCUV1H681KB	680P 50
C14	RCUV1H681KB	680P 50
C15	ECEA1CSD100L	10 16
C16	ECEA0GKS470L	47 4
C17	ECEA0GKS470L	47 4
C18	RCUS1C223KB	0.022 16
C19	RCUV1E223KB	0.022 25
C20	RCUV1H222MD	0.0022 50
C21	RCUV1H222MD	0.0022 50
C22	ECUV1C105ZF	1 16
C23	ECUV1C105ZF	1 16
C24	RCUV1H332MD	0.0033 50
C25	RCUV1H332MD	0.0033 50
C26	RCUV1E822KB	0.0082 25
C27	RCUV1E822KB	0.0082 25
C28	ECUV1C105ZF	1 16
C29	ECUV1C105ZF	1 16
C30	RCUV1E103MD	0.01 25
C31	RCUV1E103MD	0.01 25
C32	ECUV1C474ZF	0.47 16
C33	ECUV1C474ZF	0.47 16
C34	ECEA0JKS220	22 6.3
C35	RCUV1H681MD	680P 50
C36	RCUV1H681MD	680P 50
C37	ECUV1E104MD	0.1 25
C38	ECEA1EKS4R7L	4.7 25
C39	ECUV1C224MD	0.22 16
C40	ECEA1HKS2R2	2.2 50
C41	ECEA0GKS470L	47 4
C42	ECUV1C105ZF	1 16
C43	ECUV1C105ZF	1 16
C44	ECEA1CKS100	10 16
C45	RCUV1H102MD	0.001 50
C46	RCUV1H102MD	0.001 50
C47	ECSF1AE475B3	4.7 10
C48	RCUS1H101K	100P 50
C49	ECUV1E104MD	0.1 25
C50	ECUV1E104MD	0.1 25
C51	ECEA0DKS331I	330 2
C52	ECEA0DKS331I	330 2
C60	RCUV1E103MD	0.01 25
C61	RCUV1E103MD	0.01 25
C62	ECUV1C105ZF	1 16
C63	ECUV1C105ZF	1 16
C64	ECEA1EK3R3	3.3 25
C65	ECEA0DKS331I	330 2
C66	ECEA0DKS331I	330 2
C67	RCSE0GT475LE	4.7 4
C69	ECUV1C105ZF	1 16
C70	RCSE1CT105LE	1 16

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